Create a Standard Search API Across the PDS

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The PDS should support a single Application Programmer Interface (API) for metadata search across the entire network. This would provide a mechanism for end users to program their own tools and scripts to search for and locate specific data within the PDS. As far as I understand the situation at present, several PDS Nodes have independently developed search APIs, some of which are better supported than others, and none of them covering the holdings of more than a single node. An API is would be far more powerful than the currently well-supported search via web portals. Web portals can be useful to get first cuts on the data or for less technical end users, but they don't offer much flexibility to the extent that the designers of such portals must necessarily make assumptions about the types of searches or analysis that users are going to want to perform. With a web portal, it can also be very difficult to remember precise search parameters at a later date or describe them to a colleague interested in contributing to or reproducing your work. As the volume of the PDS grows ever larger, and analytical methods become increasingly computational and statistical in nature---you might even call it "big data"---web interfaces are simply cumbersome and cannot possibly anticipate all possible needs of end users. One result is that I and my colleagues have often had to resort to parsing the web-based directory structures of individual mission and instrument data sets---sometimes *also* downloading and parsing the labels or actual data files---in order to just identify and acquire precisely the data of interest. Of course, minor differences in directory and metadata structure and data format between missions and instruments mean that none of these solutions are wholly reusable. The result is a tremendous outlay of initial effort just to *find* the data we want. The specific implementation does not matter very much; REST-type API interfaces are the current vogue, but any API will do as long as it is standardized across the PDS and well documented. A single search API would form the basis of an extensible solution to this problem for everyone in the community, and therefore enable better, more efficient, and more creative use of the data in the future.